

THE CLAIMS

What is claimed is:

1. A golf ball comprising a core and a cover, wherein the ball has a moment of inertia greater than about 0.46 oz·inch² and wherein the core has a diameter greater than 1.50 inches and comprises a highly neutralized thermoplastic polymer having a specific gravity of less than 1.05 and the cover having a specific gravity of greater than about 1.05.
2. The golf ball of claim 1, further comprising an intermediate layer.
3. The golf ball of claim 2, wherein the intermediate layer is an inner cover and comprised of high specific gravity filler.
4. The golf ball of claim 2, wherein the intermediate layer is an outer core layer and has its specific gravity reduced.
5. The golf ball of claim 1, wherein the highly neutralized thermoplastic Comprises (a) an ethylene, C₃₋₈ alpha, beta-ethylenically unsaturated carboxylic acid copolymer, (b) a high molecular weight, monomeric organic acid or salt thereof (c) a cation source and (d) a thermoplastic elastomer polymer selected from copolyetheresters, copolyetheramides, block styrene polydiene thermoplastic elastomers, elastomeric polyolefins, and thermoplastic polyurethanes.
6. The golf ball of claim 1, wherein the highly neutralized polymer comprises a melt processible thermoplastic composition comprising (a) aliphatic, mono-functional organic acid(s) having fewer than 36 atoms and (b) an ethylene, C₃₋₈ alpha, beta-ethylenically unsaturated carboxylic acid copolymer(s) and ionomer(s) thereof.
7. The golf ball of claim 1, wherein the highly neutralized polymer comprises (a) a salt of a high molecular weight organic acid and (b) an acid containing copolymer ionomer.

8. The golf ball of claim 7, wherein the highly neutralized polymer further comprises (c) a thermoplastic polymer selected from co-polyesteresters, copolyetheramides, block styrene polydiene thermoplastic elastomers, elastomeric polyolefins, and thermoplastic polyurethanes.
9. The golf ball of claim 1, wherein the diameter of the core is from about 1.50 inches to about 1.66 inches.
10. The golf ball of claim 1, wherein the specific gravity of the highly neutralized polymer is reduced by the incorporating low specific gravity fillers into the polymer.
11. The golf ball of claim 1, wherein the specific gravity of the highly neutralized polymer is reduced by foaming.
12. The golf ball of claim 1, wherein the specific gravity of the cover is increased by incorporating high specific gravity fillers therein.
13. The golf ball of claim 1, wherein the specific gravity of the core is less than 1.0.
14. The golf ball of claim 1, wherein the specific gravity of the cover is between about 1.05 and about 10.0.
15. The golf ball of claim 1, wherein the specific gravity of the cover is greater than about 2.0.
16. The golf ball of claim 1, wherein the moment of inertia of the golf ball is greater than $0.50 \text{ oz}\cdot\text{in}^2$.
17. The golf ball of claim 14, wherein the moment of inertia of the golf ball is greater than about $0.575 \text{ oz}\cdot\text{in}^2$.

18. A golf ball comprising a core, an intermediate layer and a cover, wherein the ball has a moment of inertia greater than about $0.46 \text{ oz} \cdot \text{inch}^2$ and wherein the core has a diameter greater than 1.50 inches and comprises a highly neutralized thermoplastic polymer and the cover having a specific gravity of greater than about 1.05.

19. The golf ball of claim 18, wherein the intermediate layer is an inner cover and is comprised of high specific gravity filler.

20. The golf ball of claim 19, wherein the intermediate layer is an outer core and has its specific gravity reduced.